ABSTRACT

Jingga Residence which located in South Bandung is a upper class residential, but the network access still using copper cables from the MSAN to the user, it is considered inadequate for triple play service, to support triple play services PT Telkom is targeting the entire network of copper wires already replaced by optic cable networks, especially FTTH (Fiber To The Home) networks through project TITO (Trade in Trade off).

In this final project researchers will design the access network Fiber To The Home (FTTH) using Gigabit Passive Optical Network (GPON) technology. The location used as a case study is the Jingga Residence. This thesis begins with the collection of datas. Fiber To The Home (FTTH) network design is to determine the form of the device specifications, layout and number of devices used and simulated using optysistem Then analyzed based on predefined parameters such as SNR (Signal to Noise Ratio), BER (Bit Error Rate), Link Power Budget and Rise Time Budget that meets the standards of optical network with PT. Telkom.

The results of analysis for ONT farthest distance, downlink value of each parameter generating value Pr = -22.23752 dBm, the total rise time amounted to 0.152 ns using NRZ coding, SNR of 32.91 dB with BER 4.0943 x, whereas in uplinkmasing each parameter generating value Pr of -23.9913 dBm, the total rise time of 0.25 ns using NRZ or RZ coding, SNR of 36.79 dB with BER 9.4477 x 10-264. These results demonstrate the feasibility of a link meets the ITU-T standard that is at the limit of Pr [-28; -8] DBm, SNR with minimum limit PT.Telkom is 21.5 dB, and the value BER also meet standards for optical links maximum BER 10-6 [3]. Feasibility is also shown on the downlink simulation results with Pr of -21.291 and BER 2.0476 x 10-263, as well as on the uplink, with Pr of -21.512 and BER 0

Keywords: Fiber To The Home (FTTH), Gigabit Passive Optical Network (GPON), Optysistem